RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: _10/656,053 B_
Source: _1 Fwp_
Date Processed by STIC: _6/17/05_

ENTERED

RAW SEQUENCE LISTING   DATE: 06/17/2005
PATENT APPLICATION: **US/10/656,053B**   TIME: 15:04:22

Input Set : **E:\ARAG003.APP.txt**
Output Set: **N:\CRF4\06172005\J656053B.raw**

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 3 <110> APPLICANT: GUEVERA, JR., JUAN G.
 4        HOOGEVEEN, RON C.
 5        MOORE, PAUL J.
 7 <120> TITLE OF INVENTION: LIPOPROTEINS AS NUCLEIC ACID VECTORS
 9 <130> FILE REFERENCE: ARAG:003USD1
11 <140> CURRENT APPLICATION NUMBER: 10/656,053B
12 <141> CURRENT FILING DATE: 2003-09-05
14 <150> PRIOR APPLICATION NUMBER: 09/079,030
15 <151> PRIOR FILING DATE: 1998-05-14
17 <150> PRIOR APPLICATION NUMBER: 08/874,807
18 <151> PRIOR FILING DATE: 1997-06-13
20 <160> NUMBER OF SEQ ID NOS: 229
22 <170> SOFTWARE: PatentIn Ver. 2.1
24 <210> SEQ ID NO: 1
25 <211> LENGTH: 4536
26 <212> TYPE: PRT
27 <213> ORGANISM: Homo sapiens
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31   1               5                  10                  15
33 Thr Arg Phe Lys His Leu Arg Lys Tyr Thr Tyr Asn Tyr Glu Ala Glu
34              20                  25                  30
36 Ser Ser Ser Gly Val Pro Gly Thr Ala Asp Ser Arg Ser Ala Thr Arg
37          35                  40                  45
39 Ile Asn Cys Lys Val Glu Leu Glu Val Pro Gln Leu Cys Ser Phe Ile
40       50                  55                  60
42 Leu Lys Thr Ser Gln Cys Thr Leu Lys Glu Val Tyr Gly Phe Asn Pro
43  65                  70                  75                  80
45 Glu Gly Lys Ala Leu Leu Lys Lys Thr Lys Asn Ser Glu Glu Phe Ala
46              85                  90                  95
48 Ala Ala Met Ser Arg Tyr Glu Leu Lys Leu Ala Ile Pro Glu Gly Lys
49              100                 105                 110
51 Gln Val Phe Leu Tyr Pro Glu Lys Asp Glu Pro Thr Tyr Ile Leu Asn
52              115                 120                 125
54 Ile Lys Arg Gly Ile Ile Ser Ala Leu Leu Val Pro Pro Glu Thr Glu
55        130                 135                 140
57 Glu Ala Lys Gln Val Leu Phe Leu Asp Thr Val Tyr Gly Asn Cys Ser
58 145                 150                 155                 160
60 Thr His Phe Thr Val Lys Thr Arg Lys Gly Asn Val Ala Thr Glu Ile
61              165                 170                 175
63 Ser Thr Glu Arg Asp Leu Gly Gln Cys Asp Arg Phe Lys Pro Ile Arg
64              180                 185                 190
66 Thr Gly Ile Ser Pro Leu Ala Leu Ile Lys Gly Met Thr Arg Pro Leu
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67          195               200               205
69 Ser Thr Leu Ile Ser Ser Ser Gln Ser Cys Gln Tyr Thr Leu Asp Ala
70     210               215               220
72 Lys Arg Lys His Val Ala Glu Ala Ile Cys Lys Glu Gln His Leu Phe
73 225               230               235               240
75 Leu Pro Phe Ser Tyr Asn Asn Lys Tyr Gly Met Val Ala Gln Val Thr
76               245               250               255
78 Gln Thr Leu Lys Leu Glu Asp Thr Pro Lys Ile Asn Ser Arg Phe Phe
79               260               265               270
81 Gly Glu Gly Thr Lys Lys Met Gly Leu Ala Phe Glu Ser Thr Lys Ser
82     275               280               285
84 Thr Ser Pro Pro Lys Gln Ala Glu Ala Val Leu Lys Thr Leu Gln Glu
85     290               295               300
87 Leu Lys Lys Leu Thr Ile Ser Glu Gln Asn Ile Gln Arg Ala Asn Leu
88 305               310               315               320
90 Phe Asn Lys Leu Val Thr Glu Leu Arg Gly Leu Ser Asp Glu Ala Val
91               325               330               335
93 Thr Ser Leu Leu Pro Gln Leu Ile Glu Val Ser Ser Pro Ile Thr Leu
94               340               345               350
96 Gln Ala Leu Val Gln Cys Gly Gln Pro Gln Cys Ser Thr His Ile Leu
97     355               360               365
99 Gln Trp Leu Lys Arg Val His Ala Asn Pro Leu Leu Ile Asp Val Val
100     370               375               380
102 Thr Tyr Leu Val Ala Leu Ile Pro Glu Pro Ser Ala Gln Gln Leu Arg
103 385               390               395               400
105 Glu Ile Phe Asn Met Ala Arg Asp Gln Arg Ser Arg Ala Thr Leu Tyr
106               405               410               415
108 Ala Leu Ser His Ala Val Asn Asn Tyr His Lys Thr Asn Pro Thr Gly
109               420               425               430
111 Thr Gln Glu Leu Leu Asp Ile Ala Asn Tyr Leu Met Glu Gln Ile Gln
112     435               440               445
114 Asp Asp Cys Thr Gly Asp Glu Asp Tyr Thr Tyr Leu Ile Leu Arg Val
115     450               455               460
117 Ile Gly Asn Met Gly Gln Thr Met Glu Gln Leu Thr Pro Glu Leu Lys
118 465               470               475               480
120 Ser Ser Ile Leu Lys Cys Val Gln Ser Thr Lys Pro Ser Leu Met Ile
121               485               490               495
123 Gln Lys Ala Ala Ile Gln Ala Leu Arg Lys Met Glu Pro Lys Asp Lys
124     500               505               510
126 Asp Gln Glu Val Leu Leu Gln Thr Phe Leu Asp Asp Ala Ser Pro Gly
127     515               520               525
129 Asp Lys Arg Leu Ala Ala Tyr Leu Met Leu Met Arg Ser Pro Ser Gln
130     530               535               540
132 Ala Asp Ile Asn Lys Ile Val Gln Ile Leu Pro Trp Glu Gln Asn Glu
133 545               550               555               560
135 Gln Val Lys Asn Phe Val Ala Ser His Ile Ala Asn Ile Leu Asn Ser
136               565               570               575
138 Glu Glu Leu Asp Ile Gln Asp Leu Lys Lys Leu Val Lys Glu Ala Leu
139     580               585               590
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141 Lys Glu Ser Gln Leu Pro Thr Val Met Asp Phe Arg Lys Phe Ser Arg
142         595                 600             605
144 Asn Tyr Gln Leu Tyr Lys Ser Val Ser Leu Pro Ser Leu Asp Pro Ala
145     610                 615             620
147 Ser Ala Lys Ile Glu Gly Asn Leu Ile Phe Asp Pro Asn Asn Tyr Leu
148 625                 630             635                 640
150 Pro Lys Glu Ser Met Leu Lys Thr Thr Leu Thr Ala Phe Gly Phe Ala
151                 645                 650                 655
153 Ser Ala Asp Leu Ile Glu Ile Gly Leu Glu Gly Lys Gly Phe Glu Pro
154         .       660                 665                 670
156 Thr Leu Glu Ala Leu Phe Gly Lys Gln Gly Phe Phe Pro Asp Ser Val
157         675                 680                 685
159 Asn Lys Ala Leu Tyr Trp Val Asn Gly Gln Val Pro Asp Gly Val Ser
160     690                 695                 700
162 Lys Val Leu Val Asp His Phe Gly Tyr Thr Lys Asp Asp Lys His Glu
163 705                 710                 715                 720
165 Gln Asp Met Val Asn Gly Ile Met Leu Ser Val Glu Lys Leu Ile Lys
166                 725                 730                 735
168 Asp Leu Lys Ser Lys Glu Val Pro Glu Ala Arg Ala Tyr Leu Arg Ile
169 .               740                 745                 750
171 Leu Gly Glu Glu Leu Gly Phe Ala Ser Leu His Asp Leu Gln Leu Leu
172         755                 760                 765
174 Gly Lys Leu Leu Leu Met Gly Ala Arg Thr Leu Gln Gly Ile Pro Gln
175     770                 775                 780
177 Met Ile Gly Glu Val Ile Arg Lys Gly Ser Lys Asn Asp Phe Phe Leu
178 785                 790                 795                 800
180 His Tyr Ile Phe Met Glu Asn Ala Phe Glu Leu Pro Thr Gly Ala Gly
181                 805                 810                 815
183 Leu Gln Leu Gln Ile Ser Ser Ser Gly Val Ile Ala Pro Gly Ala Lys
184         820                 825                 830
186 Ala Gly Val Lys Leu Glu Val Ala Asn Met Gln Ala Glu Leu Val Ala
187         835                 840                 845
189 Lys Pro Ser Val Ser Val Glu Phe Val Thr Asn Met Gly Ile Ile Ile
190     850                 855                 860
192 Pro Asp Phe Ala Arg Ser Gly Val Gln Met Asn Thr Asn Phe Phe His
193 865                 870                 875                 880
195 Glu Ser Gly Leu Glu Ala His Val Ala Leu Lys Ala Gly Lys Leu Lys
196                 885                 890                 895
198 Phe Ile Ile Pro Ser Pro Lys Arg Pro Val Lys Leu Leu Ser Gly Gly
199.            900                 905                 910
201 Asn Thr Leu His Leu Val Ser Thr Thr Lys Thr Glu Val Ile Pro Pro
202         915                 920                 925
204 Leu Ile Glu Asn Arg Gln Ser Trp Ser Val Cys Lys Gln Val Phe Pro
205     930                 935                 940
207 Gly Leu Asn Tyr Cys Thr Ser Gly Ala Tyr Ser Asn Ala Ser Ser Thr
208 945                 950                 955                 960
210 Asp Ser Ala Ser Tyr Tyr Pro Leu Thr Gly Asp Thr Arg Leu Glu Leu
211                 965                 970                 975
213 Glu Leu Arg Pro Thr Gly Glu Ile Glu Gln Tyr Ser Val Ser Ala Thr
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214          980              985              990
216 Tyr Glu Leu Gln Arg Glu Asp Arg Ala Leu Val Asp Thr Leu Lys Phe
217          995             1000             1005
219 Val Thr Gln Ala Glu Gly Ala Lys Gln Thr Glu Ala Thr Met Thr Phe
220    1010             1015             1020
222 Lys Tyr Asn Arg Gln Ser Met Thr Leu Ser Ser Glu Val Gln Ile Pro
223 1025             1030             1035             1040
225 Asp Phe Asp Val Asp Leu Gly Thr Ile Leu Arg Val Asn Asp Glu Ser
226             1045             1050             1055
228 Thr Glu Gly Lys Thr Ser Tyr Arg Leu Thr Leu Asp Ile Gln Asn Lys
229          1060             1065             1070
231 Lys Ile Thr Glu Val Ala Leu Met Gly His Leu Ser Cys Asp Thr Lys
232       1075             1080             1085
234 Glu Glu Arg Lys Ile Lys Gly Val Ile Ser Ile Pro Arg Leu Gln Ala
235    1090             1095             1100
237 Glu Ala Arg Ser Glu Ile Leu Ala His Trp Ser Pro Ala Lys Leu Leu
238 1105             1110             1115             1120
240 Leu Gln Met Asp Ser Ser Ala Thr Ala Tyr Gly Ser Thr Val Ser Lys
241          1125             1130             1135
243 Arg Val Ala Trp His Tyr Asp Glu Glu Lys Ile Glu Phe Glu Trp Asn
244          1140             1145             1150
246 Thr Gly Thr Asn Val Asp Thr Lys Lys Met Thr Ser Asn Phe Pro Val
247          1155             1160             1165
249 Asp Leu Ser Asp Tyr Pro Lys Ser Leu His Met Tyr Ala Asn Arg Leu
250    1170             1175             1180
252 Leu Asp His Arg Val Pro Glu Thr Asp Met Thr Phe Arg His Val Gly
253 1185             1190             1195             1200
255 Ser Lys Leu Ile Val Ala Met Ser Ser Trp Leu Gln Lys Ala Ser Gly
256          1205             1210             1215
258 Ser Leu Pro Tyr Thr Gln Thr Leu Gln Asp His Leu Asn Ser Leu Lys
259          1220             1225             1230
261 Glu Phe Asn Leu Gln Asn Met Gly Leu Pro Asp Phe His Ile Pro Glu
262       1235             1240             1245
264 Asn Leu Phe Leu Lys Ser Asp Gly Arg Val Lys Tyr Thr Leu Asn Lys
265    1250             1255             1260
267 Asn Ser Leu Lys Ile Glu Ile Pro Leu Pro Phe Gly Gly Lys Ser Ser
268 1265             1270             1275             1280
270 Arg Asp Leu Lys Met Leu Glu Thr Val Arg Thr Pro Ala Leu His Phe
271          1285             1290             1295
273 Lys Ser Val Gly Phe His Leu Pro Ser Arg Glu Phe Gln Val Pro Thr
274          1300             1305             1310
276 Phe Thr Ile Pro Lys Leu Tyr Gln Leu Gln Val Pro Leu Leu Gly Val
277    1315             1320             1325
279 Leu Asp Leu Ser Thr Asn Val Tyr Ser Asn Leu Tyr Asn Trp Ser Ala
280    1330             1335             1340
282 Ser Tyr Ser Gly Gly Asn Thr Ser Thr Asp His Phe Ser Leu Arg Ala
283 1345             1350             1355             1360
285 Arg Tyr His Met Lys Ala Asp Ser Val Val Asp Leu Leu Ser Tyr Asn
286          1365             1370             1375
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RAW SEQUENCE LISTING   DATE: 06/17/2005
PATENT APPLICATION: **US/10/656,053B**   TIME: 15:04:22

Input Set : **E:\ARAG003.APP.txt**
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288 Val Gln Gly Ser Gly Glu Thr Thr Tyr Asp His Lys Asn Thr Phe Thr
289           1380           1385           1390
291 Leu Ser Cys Asp Gly Ser Leu Arg His Lys Phe Leu Asp Ser Asn Ile
292           1395           1400           1405
294 Lys Phe Ser His Val Glu Lys Leu Gly Asn Asn Pro Val Ser Lys Gly
295    1410           1415           1420
297 Leu Leu Ile Phe Asp Ala Ser Ser Ser Trp Gly Pro Gln Met Ser Ala
298 1425           1430           1435           1440
300 Ser Val His Leu Asp Ser Lys Lys Lys Gln His Leu Phe Val Lys Glu
301           1445           1450           1455
303 Val Lys Ile Asp Gly Gln Phe Arg Val Ser Ser Phe Tyr Ala Lys Gly
304           1460           1465           1470
306 Thr Tyr Gly Leu Ser Cys Gln Arg Asp Pro Asn Thr Gly Arg Leu Asn
307       1475           .  1480           1485
309 Gly Glu Ser Asn Leu Arg Phe Asn Ser Ser Tyr Leu Gln Gly Thr Asn
310    1490           1495           .  1500
312 Gln Ile Thr Gly Arg Tyr Glu Asp Gly Thr Leu Ser Leu Thr Ser Thr
313 1505           1510           1515           1520
315 Ser Asp Leu Gln Ser Gly Ile Ile Lys Asn Thr Ala Ser Leu Lys Tyr
316           1525           1530           1535
318 Glu Asn Tyr Glu Leu Thr Leu Lys Ser Asp Thr Asn Gly Lys Tyr Lys
319           1540           1545           .  1550
321 Asn Phe Ala Thr Ser Asn Lys Met Asp Met Thr Phe Ser Lys Gln Asn
322       1555           1560           1565
324 Ala Leu Leu Arg Ser Glu Tyr Gln Ala Asp Tyr Glu Ser Leu Arg Phe
325    1570           1575           1580
327 Phe Ser Leu Leu Ser Gly Ser Leu Asn Ser His Gly Leu Glu Leu Asn
328 1585           1590           1595           1600
330 Ala Asp Ile Leu Gly Thr Asp Lys Ile Asn Ser Gly Ala His Lys Ala
331           1605           1610           1615
333 Thr Leu Arg Ile Gly Gln Asp Gly Ile Ser Thr Ser Ala Thr Thr Asn
334           1620           1625           1630
336 Leu Lys Cys Ser Leu Leu Val Leu Glu Asn Glu Leu Asn Ala Glu Leu
337       1635           1640           1645
339 Gly Leu Ser Gly Ala Ser Met Lys Leu Thr Thr Asn Gly Arg Phe Arg
340    1650           1655           1660
342 Glu His Asn Ala Lys Phe Ser Leu Asp Gly Lys Ala Ala Leu Thr Glu
343 1665           1670           · 1675           1680
345 Leu Ser Leu Gly Ser Ala Tyr Gln Ala Met Ile Leu Gly Val Asp Ser
346           · 1685           1690           1695
348 Lys Asn Ile Phe Asn Phe Lys Val Ser Gln Glu Gly Leu Lys Leu Ser
349           1700           1705           1710
351 Asn Asp Met Met Gly Ser Tyr Ala Glu Met Lys Phe Asp His Thr Asn
352       1715           1720           1725
354 Ser Leu Asn Ile Ala Gly Leu Ser Leu Asp Phe Ser Ser Lys Leu Asp
355    1730           1735           1740
357 Asn Ile Tyr Ser Ser Asp Lys Phe Tyr Lys Gln Thr Val Asn Leu Gln
358 1745           1750           1755           1760
360 Leu Gln Pro Tyr Ser Leu Val Thr Thr Leu Asn Ser Asp Leu Lys Tyr
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 06/17/2005
PATENT APPLICATION: **US/10/656,053B**   TIME: 15:04:23

Input Set : **E:\ARAG003.APP.txt**
Output Set: **N:\CRF4\06172005\J656053B.raw**

<u>Please Note:</u>
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:2; Xaa Pos. 2
Seq#:75; Xaa Pos. 2,3,4,5

VERIFICATION SUMMARY   DATE: 06/17/2005
PATENT APPLICATION: **US/10/656,053B**   TIME: 15:04:23

Input Set : **E:\ARAG003.APP.txt**
Output Set: **N:\CRF4\06172005\J656053B.raw**

L:894 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0
L:2361 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:75 after pos.:0